THE WHARF BORER, *NACERDA MELANURA* L., (COLEOPTERA: OEDEMERIDAE) IN NORTH DAKOTA[1]

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ABSTRACT

Adults of the wharf borer, *Nacerda melanura* L. (Coleoptera: Oedemeridae) were collected in the basement of buildings in downtown Fargo, North Dakota, in December, 1978. *N. melanura* is a species introduced to North America from Europe. A history of the Fargo infestation dates from 1961. It is hypothesized that the beetles arrived in Fargo via early barge traffic on the Red River of the North from Manitoba.

The beetle, *Nacerda melanura* L., whose larva is commonly known as the wharf borer, has frequently been reported in the literature as a pest of uncertain economic importance because of its association as a borer in pilings of wharves, particularly those of marine environs (Broun 1902; Escherich 1923; Balch 1937; Richards and Davies 1957; Hickin 1972). As such, it is cosmopolitan, being reported from Canada, Germany, England, Denmark, Siberia, Japan, and New Zealand (Balch 1937). Arnett (1951) stated that it "is probably distributed at least along the coasts throughout the world".

Blatchley (1910), who noted that *N. melanura* was scarce in Indiana, believed that its introduction into the New World was from Europe. Arnett (1951) also thought that it was introduced from Europe, "probably by commerce in lumber, or in driftwood". To the contrary, Hickin (1972), writing in England, was of the opinion that the beetle was native to the Great Lakes region of North America and was introduced into Europe.

In addition to inhabiting wharves, the larvae of *N. melanura* have been taken in a variety of other habitats. Occasionally, *N. melanura* is a pest of telegraph poles (Craighead 1950), and fences, particularly where dogs have urinated (Balch 1937). Large numbers of adults were reported occurring in a newspaper office in Toronto, apparently attracted to toilets. In urban areas, it was found breeding in decaying wood beneath the floor of a gasoline station. In London, England, adults frequently were found on pavements or in basements in the heart of the city (Balch 1937). Hickin (1972) also reported that in London, "buried wood—sometimes at considerable depth—has been found to have numbers of living larvae in it years after the wood has been buried. The adults can mate and lay eggs within the cavities in the wood gnawed out by the larvae."

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Fargo, North Dakota, is a land-locked city, located about 1500 miles from the nearest port of international commerce with the exception of Duluth on Lake Superior which became "international" only in 1959 when the St. Lawrence Seaway opened. However, a reoccurring incidence of this species has been observed in Fargo over the past 17 years and shows striking similarity to the London report of Balch (1937). Particularly the adult beetles have been found—at times in rather large numbers—in basements and on the sidewalks in downtown Fargo. Local pest control operators have been familiar with this species for a good number of years. The earliest report of *N. melanura* in the literature for North Dakota stated: "The first record of this species being abundant and a nuisance was reported from two Fargo office buildings this week" (Goodfellow 1961). Three pinned specimens in the North Dakota State Insect Reference Collection likely are representative of this report. One bears the following data: "Cass Co., N. D. 3.V.1961. R. L. Post". The other two were collected the following week: "Fargo, N. Dak., 7.VI.1961. Gregory John and Richard L. Post". Another series of 160 adults in our collection is labeled: "Fargo, N. D. 25.IV.1968, R. L. Post and D. G. Aarhus, Old wooden floor in basement of building". The corresponding report in the literature reads "Adults in building at Fargo, Cass County; holes in supporting wood timbers. Controls applied" (McBride 1968). We also have another specimen taken on July 8, 1975, by R. L. and R. C. Post; "on a building, 2nd Ave. North and Broadway by Merchants' Bank, Fargo, N. Dak.". (The bank was built in 1921).

The most recent finding of these beetles in Fargo occurred in December, 1978, when one of the local pest control operators noted an infestation in the downtown area only one block away from where the last specimen was collected. In checking this site, the heated basement storage area of a ladies' apparel shop, both dead and alive adult beetles were found on the floor and shelving near the walls. No larvae could be found. The floor consisted in part of wood and concrete.

Local pest control operators noted that the source for earlier infestations of the larvae was buried wooden beams which were hollowed out and fitted as two sleeves for insulation over the pipes of the city central heating system. The steam generation plant was located just to the north of the old Northern Pacific Railroad Depot, but was dismantled May 1, 1973. The underground pipes with their casings, which conducted the steam to various businesses, are still in place. Evidently temperature and humidity have remained sufficiently constant to maintain populations of these beetles long after the shut down of this heating system.

If, as Blatchley (1910) and Arnett (1951) concluded, *N. melanura* was introduced from Europe, it is of some interest to speculate as to how these beetles originally arrived in Fargo. According to Arnett (1951), the states closest to the east having *N. melanura* are Illinois and Michigan. Kirk and Balsbaugh (1975) reported them as "rare from eastern South Dakota, viz. Brookings and Clear Lake in May and October". The nearest records from the west, however, are from Washington and Oregon (Arnett 1951).

Perhaps the records from the north offer the best suggestions as to how this species came to Fargo. Balch (1937) reported that *N. melanura* was found in Winnipeg, Manitoba, in 1931. Winnipeg has navigable water connections to the marine port of York Factory on Hudson Bay via Lake Winnipeg and the Nelson River. Fargo, in turn, is connected with both the city of

Fig. 1. The Red River of the North at Fargo, North Dakota, in 1879 (Photograph by O. E. Flaten of Moorhead, Minnesota, Courtesy of the Clay County Historical Society). Ample opportunity for the early introduction of the wharf borer, *N. melanura,* to Fargo, N. D. was afforded by transportation on this river. Structures offering potential habitat, as seen in this picture, include bridge pilings, rafts, barges, boats and their cargo, and railway ties.

Winnipeg and Lake Winnipeg via the Red River of the North which flows north, emptying into the lake. Much of the early settlement of the Red River Valley occurred from southward migrations from the early 19th century Selkirk settlements in Manitoba. Prior to the railroads, the Red River was heavily used for barge and boat traffic (Fig. 1). The planking of boats and barges, as well as certain items of cargo, were likely means of transport of these beetles from marine port sources. Often the river vessels were constructed of used lumber from older vessels. In addition, this planking was often recycled again when their use on the river was accomplished. Very likely, some infested lumber wended its way to Fargo.

In his revision of the family Oedemeridae for the Nearctic Region, Arnett (1951) adequately described the species *N. melanura*. We have observed, however, some rather striking chromatic variation of the pronotum not previously reported. Of the series collected in 1968, 10% of the beetles (n = 160) had a dark or partially dark pronotum. Of the recent December 1978 series (n = 33), 6% had the pronotum dark. The immature stages of *N. mela-*

nura can be identified via a series of papers by Rozen: larvae (Rozen 1958, 1960); pupae (Rozen 1959).

Our recent records, we believe, are the first which indicate that adults of *N. melanura* were collected in the winter indoors. Balch (1937) indicated that larvae inhabiting wharves at Saint John, New Brunswick, Canada, overwintered in many different stages. The large ones pupate early in the season, while the smaller may possibly not pupate until the following year. Generations evidently overlap considerably and in New Brunswick, may take two or more seasons to complete development.

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